

# SECURE WIRELESS LOCAL AREA NETWORK

## ABSTRACT

The secure wireless local area network of the present invention includes a single  
5 wired network that supports both wired and wireless devices. The network addresses security  
concerns by including an authentication server that services a plurality of access points. Each  
access point includes a first authentication device that generates and transmits a first  
authentication message to the corresponding wireless device over an air channel. The first  
authentication message includes encrypted validating information about the access point  
10 including an access point key that uniquely identifies the access point. Each wireless device  
includes a second authentication device. The wireless device receives the first authentication  
message and determines whether the access point is authorized to connect to the wired  
network. If the access point is valid, the second authentication device responds to the first  
authentication message by generating and transmitting a second authentication message to the  
15 access point. The second authentication message includes encrypted validating information  
about the wireless device and operator, e.g., a device key and the operator's logon name and  
password. The access point determines the authenticity of the wireless device by decrypting  
the portion of the second authentication message that includes the device key. If the wireless  
device is valid, the AP opens a control channel with the authentication server. The AP  
20 transmits the first and second authentication messages to the authentication server. If the  
authentication server validates the access point and the operator's logon name and password,  
it will authorize access to the wired network.